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HALDANE'S *DAEDALUS* REVISITED

Edited with an introduction by

KRISHNA R. DRONAMRAJU

Foreword by

JOSHUA LEDERBERG

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FOREWORD

JOSHUA LEDERBERG

J.B.S. Haldane's *Daedalus* 1923—70 years before and after

70 years after the publication of *Daedalus* in 1923, most of Haldane's themes are intelligible, even familiar, however we may criticize them in detail. 1923 is separated by a much deeper gulf from 1853. Despite the enormous acceleration of science and technology in this septuadecennium, there were far more deepseated revolutions of thought in the previous one: evolution, infection, the gene, molecular organics, the radioactive atom, electromagnetic radiation, relativity, quantum theory.

From the vantage point of 1923, Haldane could but dimly anticipate the further directions of science, but could more self-assuredly extrapolate the technological applications of some of these breakthroughs. Inevitably, he missed many boats: nuclear energy, the electronic computer, space travel. He'd had radioactivity in mind, but could not foresee the neutron, nuclear fission, or fusion. Ectogenetic procreation—prefiguring Aldous Huxley's *Brave new world*—is virtually achieved; its near equivalents of *in vitro* fertilization, and embryo culture and transplantation are in today's headlines. And the separation of sexual gratification from reproduction is here to stay.

Haldane also inspired Huxley's vision of 'soma', the innovation of mind-altering chemistry, for which LSD and Prozac are the crude beginnings. By meeting universal wants, a 'safe' soma may be the most devastating of the biological technologies on the horizon—matched only by the promise of indefinite life-extension, at infinite cost.

Can one do any better in anticipation from 1994? But first, what merit is there to such an exercise? With politics, via the multimedia, so inextricably fused with entertainment, I despair that any more rational planning could ensue. In fact, so few people can admit the possibility of any change of moral or social perspective as to invite

a kind of imperialism of the present over the future, a closing of options that our children should have available to them. And they would argue in turn that they receive a legacy of technology, about whose merits they had no voice in deciding. So our prior ethical task is to outline what is owing in intergenerational responsibility—one beyond the scope of this essay.

Today's nightmares embrace population, pollution, plagues, and proliferation of weapons. For the first three, technology has much to offer in mitigation, and rational explication does play some role in engendering the political will to pay for the remedies. For the fourth, nothing would be better than an enforceable moratorium. Leo Szilard once said, 'The optimist is one who believes the future is uncertain', and to that degree there remains a shred of hope for the needed world order. Scientists are the most cosmopolitan agents in a contemporary culture that becomes ever more particularistic, including in the exploitation of the fruits of science and technology.

Technological futurism is so widely practised today; I will not dwell on a landscape oft painted by others. Space travel, computers, multimedia, and the global village are all familiar themes, and nevertheless quite realistic. In fact other physical technologies may be accelerated with the truncation of effort in mega-high-energy particles, which have the remotest bearing on everyday existence. Within biology, working out the DNA paradigm (Lederberg 1993) is enough to occupy several generations of researchers, and to offer zones of application in technology at least as immense as its proponents advertise—not necessarily ensuring profits for the specific ventures currently touted. The last bastions of biological mystery, embryonic development and the conscious brain, have a century's trove of secrets to be plumbed. How we define individual personality becomes the next ethical challenge that must confront materialistic biological fact. The DNA paradigm is so deep, so pervasive, that it has become difficult to speculate on what could ever lie beyond it—at the very horizon, just how life could have evolved on earth, or in cosmological differentiation before that. And therefrom, the actual synthesis of alternative life forms, based on chemistries other than DNA, and imaginably already extant elsewhere in the universe, and accessible only by telecommunication. Biology is already so fact laden that it is in danger of being bogged down awaiting advances in logic and linguistics to ease the integration of the particulars. So we welcome better esoteric communication as well. This very text stands

a better chance of some useful influence, or inviting proper criticism, when it becomes electronically available 'online'.

Haldane's writing sits athwart sceptical utopias—he bridges Samuel Butler and Aldous Huxley—and he sheds only a trace of optimism that human political arrangements will successfully master technological power for broader advantage. '... the tendency of applied science is to magnify injustices until they become too intolerable to be borne. . . .'

Public grievances about science and technology have become even more articulate since Haldane's writing—though we recall that Shelley's *Frankenstein—the modern Prometheus* dates to 1818, and is derived from classical and Old Testament allusions. In an increasingly technological civilization, one could characterize public perceptions as being more passionately ambivalent: full of deeper fear, dependence, expectation, resentment, and incomprehension (Lederberg 1972). In 1923, Haldane still railed against religious superstition and bigotry—this is perhaps coming back full circle. But for the most part, science has played its part in the attrition of the old faiths. In 1923 science could be viewed as a counter-religion; but this movement has failed utterly. Up through the nineteenth century, science could offer rational explanation of many features of everyday life: the movements of the planets, fire, electricity, healing drugs, biological evolution and diversity, in terms that enriched lay understanding and a sense of personal control of the environment. This is no longer true: the environment has become infinitely more complex, and the cutting edge of scientific discovery needs tomes of background just to understand the conceptual issue. And that technological environment is changing so rapidly, and posing so many burdens of decision, that everyman does become bewildered, resentful, and mistrustful of established authority. Above all, science is bereft of deontology: it cannot tell why one should be interested in science or anything else. It is no replacement for the anchor of religious faith; at its best it can help explore the consequences of our beliefs and actions, and complicate our ethical judgments accordingly.

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